treated with antibiotics were excluded. Analysis was restricted to those patient visitation cared by physician specialty with general practice, family practice, and internal medicine. Multivariate logit regression analysis was performed to assess the relationship between patient insurance status and the prescribing of broad-spectrum antibiotics controlling for age, gender, race and ethnicity, physician specialty, and comorbidities. **RESULTS:** Of 851 adults patients care for ARTI, 38% were prescribed one or more broad-spectrum antibiotics. In multivariate regression analysis, compared to those with private insurance, those with Medicaid, a public insurance program for low-income Americans, was associated with lower likelihood of prescribing of broad-spectrum antibiotics (adjusted odds ratio (OR) 0.496, p = 0.003), so were those without health insurance (adjusted OR 0.499, p = 0.028), and those with Medicare, a public insurance program for the elderly or disabled adults (adjusted OR 0.666, p = 0.091). **CONCLUSIONS:** In the case of ARTI, those with private insurance were substantially more likely to be prescribed with broad-spectrum antibiotics, where the society may be better off if such overuse of antibiotics could be reduced.

PRS45

INTEGRATED EDUCATIONAL PROJECT WITH INDIVIDUAL FEEDBACK FROM CLAIMS DATA LEADS TO IMPROVED ANTIBIOTIC PRESCRIPTION AND RESISTANCE DECREASE

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OBJECTIVES: Increasing antibiotics costs and resistance led to establishment of educational project S-MedDial under guarantee of the General Health Insurance Fund and related professional associations. The project evaluates prescription habits in respiratory infections, monitors antibiotics resistance and provides individual feedback to pediatricians. Introduction of new indexes and summary quality bar from selected eight indexes has enhanced comparison among physicians and their willingness to improve. **METHODS:** In the last round of the project the antibiotic prescription was analyzed for 97 doctors in 7 Slovak regions based on the retrospective claims data from September 2007 to March 2008 and compared with previous season data. Individual feedback was provided to practitioners during regional meetings together with expert presentations and educative leaflets. **RESULTS:** Every second child with respiratory infection was treated with antibiotics. The most frequent drugs in DDD were macrolides (22.6%), followed by beta-lactamase sensitive penicillins (19.5%) and cephalosphorines (18.4%). Best pediatricians (20% of the group) were significantly different compared to the rest in majority of the quality bar indexes: less patients treated with ATB (31% vs. 51%); lower proportion of ATB in treatment (in EUR: 51% vs. 73%, in DDD: 28% vs. 51%); lower ATB costs per patient (−15%); lower aminopenicillins usage in acute tonsillopharyngitis (6% vs. 16%); lower ATB ratio in acute sinusitis (43% vs. 57%); however high ratio of macrolides was the problem across all groups. Higher prescription quality and lower ATB costs correlated together. There was significant decrease of ATB costs induced by one pediatrician during six years of the project (−50%). **CONCLUSIONS:** S-MedDial project represents an option for increase of antibiotics prescription quality using the prescribing practitioners' education. Analysis of prescription habits is suitable not only for cost control but also for antibiotics prescription implications on resistance trends. Long-term integrated educational program leads to prescription habits change and better quality of care.

PRS46

TEN YEAR TRENDS IN PRESCRIPTION OF CHRONIC OBSTRUCTIVE PULMONARY MEDICATION AMONG ADULTS FROM 1996 TO 2005

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OBJECTIVES: Many guidelines were released during the past decade which tried to explain appropriate drug use for patients diagnosed with COPD. Medication use in COPD is also associated with issues related to adherence and side effects. The purpose of this study was to determine trends in prescription of COPD drugs in ambulatory setting and assess the rate of change in different drug classes. **METHODS:** We combined National Ambulatory Care Settings (NAMCS) and National Hospital Ambulatory Care Settings (NHAMCS) data from year 1996 to 2005. For trend analysis, data were stratified in 2-year periods. All adult visits with only primary diagnosis of COPD (ICD-9-CM: 491, 492, 496) were included in analysis and drug categories were identified using National Drug Codes. Descriptive analysis was carried out to determine patterns in drug prescription across years and four separate multivariate logistic models, dependent variable being drug class and independent variable being year, were constructed to identify rate of change in drug use across years while controlling for age, race, sex and smoking status. **RESULTS:** From 1996–97 to 2004–05, total COPD visits have been increased from 0.59% to 0.77%; Prescription of anticholinergics and inhaled corticosteroids increased (17.47% to 33.48% and 12.63% to 35.19% respectively), whereas beta-agonist had no upward trend (29.46% to 29.53%). In year 1996–97, beta-agonist was the highly prescribed drug (29.46%) whereas in 2004–05, anticholinergics (33.48%) and inhaled corticosteroids (35.19%) were the top prescribed medications. From year 1996 to 2005, prescription of anticholinergics (OR-1.088; CI-1.029–1.151) and inhaled corticosteroids (OR-1.132; CI-1.065–1.203) increased, beta agonist use has decreased (OR-0.916; CI-0.866–0.969) whereas there was no change for systemic corticosteroids (OR-1.034; CI-0.979–1.092). **CONCLUSIONS:** Overall drug utilization for COPD is increasing steadily. Use of bronchodilators is increasing which is in accordance with Global initiative for Chronic Obstructive Lung Disease (GOLD) guidelines. Corticosteroid use which is increasing should be based on risk to benefit ratio.

RESPIRATORY-RELATED DISORDERS – Conceptual Papers & Research on Methods

PRS47

COMPARING RISK ADJUSTMENT MODELS: PROPENSITY SCORE MATCHING, STANDARD REGRESSION ANALYSIS AND INSTRUMENTAL VARIABLE METHOD

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OBJECTIVES: To compare three common risk adjustment models when estimating health care costs. **METHODS:** Using data from U.S. claims databases, the effect of treatment on total health care expenditures among asthma patients was estimated. Reimbursement amounts were dollars paid by the health plan to the provider including patient co-payments and deductibles. Doctors' prescribing patterns were used as an instrumental variable for treatment choice. Propensity score matching was employed using the nearest neighbor matching algorithm. Generalized linear model was used as an alternative risk adjustment technique. **RESULTS:** Patients treated with control medication were younger, more likely to live in the northeast and south of the United States and have a higher Charlson comorbidity score, Elixhauser score and chronic disease score relative to patients treated with reliever medication. The difference between one year health care costs for reliever and controller medication was $2,345 by propensity score matching, $2,195 by generalized linear model, and $2,997 by instrumental variable approach. The difference was statistically significant. **CONCLUSIONS:** After adjusting for patient clinical and demographic characteristics, controller medication was less costly than reliever medication. The choice of risk adjustment was important. The technique that controlled for both observed and unobserved biases (instrumental variable technique) provided a difference of almost 30% higher than the other techniques.

PRS48

ASSESSING THE TIME-DEPENDENT NATURE OF COMORBIDITY INFLUENCE IN COPD

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OBJECTIVES In most outcome studies, comorbidity influence is modelled as constant with inherent assumptions that the duration of the condition does not influence prognosis and the effect persists. We challenge these assumptions as we demonstrate the time-dependent nature of the influence of certain comorbidities on patient survival. METHODS A retrospective cohort of 23,881 patients aged 50+ in the UK-GPRD at time of incident COPD diagnosis between 1990 and 1998 provided an appropriate setting. Each death patient was matched to as many survivors from the same practice as possible, of same age, sex and COPD duration. Some 18 binary comorbidities measured at the time of death were analysed in relation to mortality. Using conditional logistic regression model, we estimated hazard ratio (HR) for each comorbidity, adjusted for key baseline characteristics in two different models: In model A, we treated comorbidities as constant variables, whilst in B, we stratified each into two time-dependent categorical variables. We retained interactions between comorbidities which were significant. RESULTS Some 2938 dead patients were matched to 5792 survivors. We found evidence of time-dependent effects on risk for all but peripheral vascular disease and diabetes. Only in model B did we find evidence for peptic ulcer, moderate/severe liver disease and hemiplagia/paraplagia. The liver disease effect was significant only in those diagnosed within a year of death (HR > 15; p = 0.0162), where as the hemiplagia/paraplagia effect was found only in those diagnosed over a year ago (HR > 1.6; p = 0.0163). CONCLUSIONS To adequately adjust for comorbidity influence in outcome studies, we recommend stratification of each comorbidity on the basis of its duration (at start of follow-up for a cohort, or at time of outcome for a case-control study) to test for possible time-dependent effect. Adopting such approach as part of the exploratory analysis may improve the model and lead to more accurate estimations

PRS49

COMPARISON OF TWO METHODS FOR COVARIATE ADJUSTMENT WHEN ASSESSING HEALTH OUTCOMES IN THE U.S. HOSPITAL INPATIENT SETTING

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OBJECTIVES: Demonstrate the differences in results from the use of two different methods for covariate adjustment when calculating differences in outcomes between groups. METHODS: The 2006 Nationwide Inpatient Sample hospital database was analyzed to estimate the clinical and economic impact to U.S. hospitals of air leaks during post-operative pulmonary surgery. For all stays with pulmonary surgery, length of stay (LOS), total charges, and in-hospital mortality rates were compared between stays including an air leak vs. stays without an air leak, while using two different methods to adjust for covariates: 1) multivariate regression analysis (ordinary least square regression for LOS and total charges, and logistic regression for in-hospital mortality) while controlling for age, gender, and hospital region; 2) 1:1 matched case-

controls based on age, gender, and hospital region. RESULTS: The 2006 NIS contained a total of 15,748 unweighted hospital inpatient stays with pulmonary surgery, 2,412 of which included an air leak and 13,336 were non-air leak stays. Patients with pulmonary surgery stays including an air leak were older than those patients without an air leak (61.5 yrs vs. 60.2 yrs; p = 0.0002), were less likely to be from the Northeast (17.3% vs. 21.52%, p < 0.0001) and more likely to be from the South (44.9% vs. 41.9%, p = 0.0010). Multivariate regressions (N = 15,748) yielded incremental LOS, total charges and odds of in-hospital mortality due to the presence of an air leak of 3.5 days (SE = 0.15), $14,272 ($1,198.2), and +26.0% (95% CI:-0.34%, 64.2%), respectively. The 1:1 case-control matching approach (N = 2,364 matched pairs) yielded differences in LOS, total charges and odds of in-hospital mortality of 3.6 days (0.14), $14,011 ($1,207.8) and +17.2% (–0.17%, 66.2%), respectively. CONCLUSIONS: In evaluating differences in health outcomes in a U.S. hospital inpatient database, adjusting for covariates using a matching scheme yielded only a modest impact vs. multivariate regression analysis.

SYSTEMIC DISORDERS/CONDITIONS – Clinical Outcomes Studies

PSY1

CONCORDANCE IN PATIENT REPORTED MEASURES OF OPIOID-RELATED SIDE EFFECTS COLLECTED FROM CHECKLIST VERSUS OPEN-TEXT FORMAT QUESTIONS

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OBJECTIVES: Compare two different formats—checklist and open text— of questions soliciting opioid-related side effects (OSEs) with respect to the proportion of patients reporting OSEs and the number of OSEs reported. **METHODS:** Data from Day 3 assessment of the oxycodone IR users registry (OUR), an ongoing, prospective, multicenter registry of patients age 18–85 with acute episodes of non-malignant pain requiring treatment with oxycodone IR for >5 days were used. Patients who completed two types of OSEs assessments on Day3 were included in the analysis. The first assessment is in an open-text format allowing for identification of up to 7 symptoms. The second is in a checklist format listing 14 symptoms along with questions about the frequency and degree of distress associated with each. Correspondences between patient responses solicited through the two different formats were examined using descriptive statistics. Interim data were used for the current analysis. The entire registry patient population will be analyzed in early 2010. **RESULTS:** Among 182 patients examined for this analysis, mean (±SD) age was 49.3 (±12.7) years, 60.2% were female and 74.3% white. Oxycodone IR was most commonly prescribed for injury/trauma (30.5%), back/neck pain (28.8%), and arthritis (18.1%). The proportion of patients reporting any OSEs in the checklist was nearly two-fold that in the open text (98.9 vs 53.6%; p < 0.001). Patients, on average, reported 4.1 (SD = 6.3) OSEs on the checklist vs 1.3 (SD = 1.6) on the open-text question (p < 0.001). Significantly more events were reported in the checklist vs open text question for each OSE examined (p < 0.001). OSEs reported to be frequent and bothersome on the checklist were significantly more likely to appear in the open text compared to infrequent and mild symptoms. **CONCLUSIONS:** Frequency and extent of OSE reporting may vary by the format of questions administered. Caution is warranted in collecting, reporting, and comparing symptom data from different studies.

PSY2

PREDICTORS OF OBESITY MEDICATION USE IN AMBULATORY SETTING: NAMCS 2006–07 ANALYSIS

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OBJECTIVES: To determine the independent predictors of prescription of anti-obesity medication for adult patients diagnosed with obesity and to determine association of insurance status on anti-obesity medication prescription. **METHODS:** The data source was 2006 and 2007 National Ambulatory Medical Care Survey, a national survey of U.S. non-institutionalized population. All adult patients >= 18 years diagnosed with obesity (ICD-9-CM: 278.00) were included in the study for analysis. Weighted descriptive analysis and multivariate logistic regression were carried out to identify patterns of drug use and independent predictors of at least one prescription of anti-obesity medication, adjusting for age, race, sex, region, insurance status, co-morbidity, counseling and MSA. **RESULTS:** An estimated 113 million adult visits had diagnosis of obesity in the 2 years. Of these, 5.79% visits resulted in anti-obesity medication prescription. In multivariate model, males (OR—0.244 CI: 0.128–0.463), were less likely to receive anti-obesity medication prescription as compared to females. Patient visits covered by private or public insurance were less likely to receive prescription (OR—0.056 CI: 0.021–0.146 and OR—0.080 CI: 0.034–0.189 respectively). Increase in age was associated with decreased (OR—0.976 CI: 0.962–0.990) likelihood of receiving anti-obesity medication prescription. Adults who received obesity counseling were almost four times more likely to receive anti-obesity medication prescription (OR—3.730 CI: 1.878–7.407). Physician type, MSA, co-morbidity status, race and region were not significantly associated in the final multivariate model. **CONCLUSIONS:** Study finding suggests that adequate coverage for anti-obesity medications might not be available for obese adults. Obesity is a harbinger for other chronic diseases like CHF, diabetes, hypertension, arthritis and some cancers; thus reducing access to obesity medications might lead to an overall increase in the health care expenditure in United States. Obesity counseling seems to promote medication use which might be due to an increased awareness among obese patients.

PSY3

CENTRAL VENOUS LINE INFECTIONS IN PATIENTS WITH HEMOPHILIA AND HOME CARE SERVICES

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OBJECTIVES: Patients with hemophilia require frequent administration of intravenous clotting factor to prophylactically or episodically control bleeding from injury or activity. Severe patients may require the placement of a central venous access device due to the frequency of infusions or poor peripheral venous access. Subsequent central venous line infections are potentially life threatening and may require hospitalization which consumes excessive health care resources. Catheter infection events cost up to $29,000 per episode for acutely ill patients and can be much higher when cost of clotting factor is included. Costs of these events include intravenous antibiotics and device replacement. The study purpose was to evaluate incidence of central venous access device infections in people receiving clotting factor in the home setting. **METHODS:** A retrospective, longitudinal analysis of patients receiving intravenous clotting factor using data from the Accredo electronic medical record was conducted. Inclusion criteria were the presence or placement of a central venous access device and the dispensing of at least one clotting factor prescription during the study period. Patients were followed from October 1, 2008 through September 30, 2009. The patient reported infection rate was defined as the number of bloodstream infections per 1000 patient catheter days. **RESULTS:** The sample size of 475 patients reviewed encompassed 131,916 patient catheter days during the study period with average catheter dwell time of 278 days. The central line infection rate was 0.53 per 1000 patient catheter days with minimal month to month variation. **CONCLUSIONS:** Intravenous administration of clotting factor via a central venous access device is an important alternative infusion option for select patients with bleeding disorders. Patients can be well managed in the home on intravenously administered factor via central venous access devices. This is an important contribution to limited literature on central line infections in the home setting.

PSY4

DAILY AVERAGE CONSUMPTION ANALYSIS OF LOW BACK PAIN AND OSTEOARTHRITIS PATIENTS USING OXYMORPHONE EXTENDED RELEASE AND OXYCODONE HYDORCHLORIDE CONTROLLED RELEASE TABLETS IN A COMMERCIALLY INSURED POPULATION

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OBJECTIVES: This study assessed the daily average consumption (DACON) patterns for oxymorphone extended release tablets and oxycodone hydrochloride controlled release tablets in the treatment of low back pain (LBP) and osteoarthritis (OA). **METHODS:** Observational, retrospective study of a US commercially insured health plan cohort, which included pharmacy and medical claims for patients with ≥1 diagnosis of LBP and/or OA. Subjects with OA and or LBP were identified by ICD-9-CM codes following classifications[1,2,3] previously employed. The primary outcome measure for the analysis was DACON which was calculated by dividing the total number of tablets dispensed by the total number of days supply for equianalgesic[4] doses of each medication, as defined by an oxymorphone ER : oxycodone HCl CR ratio of 1:2. Patient demographic data were assessed and outcomes were stratified by age, gender, and region comparing users who had claim activity for 2 or more of the two medications for at least 30 days prior to and 90 days after the index date. The t-test was used to compare mean differences between the two populations for continuous variables. Multivariate analysis was conducted as a sensitivity analysis in controlling for age, gender, and region heterogeneity. **RESULTS:** Data analyzed encompassed approximately 25 million covered lives for the period January 2006 to March 2009. DACON across all tablet strengths for oxymorphone ER was 2.2 compared to 2.6 for oxycodone CR (p < 0.01). For each formulations maximum strength tablet, oxymorphone ER 40 mg DACON was 2.6, compared to 3.7 for oxycodone CR 80 mg (p < 0.01). All statistically significant results for patients with LBP and/or OA had higher DACONs for oxycodone CR than for oxymorphone ER. **CONCLUSIONS:** These findings imply that health plan drug policies may need to take into consideration overall usage patterns, patient demographics, and medical diagnoses for long-acting opioids in addition to tablet costs when making formulary decisions.

PSY5

A META-ANALYSIS OF EFFICACY AND SAFETY OF PARECOXIB IN ORTHOPEDICS SURGERY

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OBJECTIVES: The aim of this study was to conduct a meta-analysis of randomized clinical trials (RCTs) to determine effectiveness and safety of parecoxib as an analgesic option for adult patients in orthopedics surgery. **METHODS:** All meta-analysis estimations were performed with RCTs based on trials with similar parecoxib doses (20 or 40 mg) and by type of comparator (placebo or other drugs). Effectiveness was assessed with patient global treatment evaluation, consuming rescue drug rate, pain intensity at 24 or 48 h after surgery and morphine consume after surgery; safety with the frequency and type of adverse events(AE). RCT were searched in December 2008